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ABSTRACT

This study tested whether gender differences in recall of performance feedback exist. Participants were 88 female and 68 male undergraduate students enrolled in introductory psychology courses at the University of Wisconsin-Parkside. They were presented with eight comments each (evaluative feedback) for both an English paper and a computer program. Participants were asked to imagine that either they or another student had written the paper or the program. The feedback for one of the two performance domains was mostly positive, the other mostly negative. After reading the performance feedback, participants were asked to guess the letter grade the professor had assigned to the paper or program and to rate the comments. Participants were then given a three minute surprise recall test of the performance feedback for both domains. Finally, participants were given a form listing each of the eight English paper and eight computer program comments. They were asked to rate the three comments that were most influential in determining the grade the professor has assigned the paper or program. The women estimated that the English paper had received higher grades than men did when the feedback was positive, but they estimated lower grades than men did when the feedback was negative. Thus, females reacted in a more polarized fashion to the performance feedback, indicating that they were somewhat more affected by the evaluative feedback than males. However, this effect was not found for the computer program. (Contains 39 references.) (MKA)

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Gender Differences in the Recall of Performance Feedback[1]

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Abstract

This study tested whether gender differences in recall of performance feedback exist. Males showed more self-enhancement and less other-enhancement than females. This may have deleterious consequences for females' confidence.

How do people assess their performance on a task? Several variables which affect self-evaluations of performance have been identified in the extant literature. Pre-task performance expectancies affect post-task self-evaluations. Individuals who expected to perform well believed that they performed better than individuals who expected to do poorly, even when controlling for actual performance (Beyer, 1990, 1998, 1999a, 2000; Beyer & Bowden, 1997). In addition, gender affects self-evaluations of performance, especially on masculine gender-typed tasks. On such tasks females underestimate their performance more or overestimate it less than males do (Beyer, 1990, 1998, 1999a, 2000; Beyer & Bowden, 1997). This line of research was conducted in the absence of feedback on the person's overall level of performance.

A separate line of research on self-evaluations of performance has concerned itself with people's reactions to evaluative feedback. This work has been influenced by the concept of the "looking-glass self" (Cooley, 1902) which assumes that a person's self-concept "is formed, maintained, and changed primarily through assimilation of evaluative feedback from others" (Lundgren & Rudawsky, 1998, p. 410). This research has uncovered gender differences in reactions to evaluative feedback: Women are more influenced in their self-perceptions by evaluative feedback than men are, especially when the feedback is negative (Roberts & Nolen-Hoeksema, 1989, 1994). Men are more likely than women to discount negative feedback, whereas women are apt to believe that performance feedback is accurate regardless of its valence (Roberts & Nolen-Hoeksema, 1989, 1994).

What can explain the gender difference in reactions to evaluative feedback? For one, females are more empathic (Mehrabian, Young, & Sato, 1988) and more accurate in decoding nonverbal cues (Hall, 1998). Thus, females may be more aware of and/or more skilled than males in interpreting nonverbal feedback and therefore more affected by its content. Secondly, females may be more influenced by persuasion attempts than men (Eagly, 1978), thus increasing their likelihood of accepting evaluative feedback.

A third explanation assumes different emphases on the valence of information by males and females. In general, people resist negative feedback (Banaji & Prentice, 1994) because it is self-discrepant. When receiving self-discrepant feedback, participants will often bend over backwards to reinterpret the feedback in self-consistent ways, or reject it outright (Jussim, Coleman, & Nassau, 1987; Swann, Griffin, Predmore, & Gaines, 1987). However, when negative feedback is consistent with a person's self-concept, it is accepted (e.g., Swann et al., 1987). For example, participants with low self-esteem recall personality feedback as less favorable than it was, whereas high self-esteem participants' recall of the feedback is overly optimistic (Story, 1998). Thus, a person's level of self-esteem (Dutton & Brown, 1997; Jussim et al., 1987; Lundgren & Rudawsky, 1998; Sanbonmatsu, Harpster, Akimoto, & Moulin, 1994) and depression (Gotlib, 1983; Post, Lobitz, & Gasparikova-Krasnec, 1980) affects reactions to evaluative feedback.

Is negative evaluative feedback more consistent with females' self-concept and therefore more likely to be accepted by females? Indeed, recent research found that females recall negative aspects of their performance (i.e., questions they believe they answered incorrectly) better than men (Beyer, 1998, 2000). This explains why previous research on reactions to evaluative feedback found gender differences mostly to negative feedback (Roberts & Nolen-Hoeksema, 1989, 1994).

However, it should be noted that when performance feedback for individual test questions is viewed as veridical and unbiased (because it is provided by a computer), males and females alike, accepted it, and used it equally well to guide their self-evaluations of performance (Beyer, 2000). Thus, gender differences in reactions to evaluative feedback are most likely to occur when feedback recipients believe that the feedback is biased or subjective.

The present study examined gender differences in differential recall of positive and negative performance feedback. In addition, the generality of the effect was investigated by assessing reactions to evaluative performance feedback for both a computer program and an English paper.

Method

Participants

Participants were 88 female and 68 male undergraduate students enrolled in introductory psychology courses at the University of Wisconsin-Parkside. Participants ranged in age from 16 to 49 years old.

Materials

Participants first provided demographic information regarding themselves, including sex, age, race, year in college, and whether the person had declared a major. The Rosenberg Self Esteem Scale (Rosenberg, 1965) and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) were also administered.

Participants were presented with eight comments (evaluative feedback) each for an English paper and a computer program.

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The comments for the paper/program were pretested on a different sample of 20 students. This ensured that the comments on the English paper and computer program were matched in terms of positivity or negativity of feedback and in the number of comments provided. Each participant received a packet containing one set of eight comments that were mostly positive and one set of eight comments that were mostly negative. One set of comments was for the English paper, the other one for the computer program. The first seven of the feedback comments were of equivalent valence (either positive or negative), whereas the eighth comment was always of opposite valence to the preceding ones. The order of presentation of the paper/program and positivity/negativity of the feedback was counterbalanced.

Specifically, participants who received positive feedback for the English paper and negative feedback for the computer program read the following comments.

For the English paper: Your paper gets at the heart of the issue at hand. You have presented a well-reasoned analysis. Your ideas are clearly focused. Also, the overall organization is good. You presented your arguments in a logical manner. Your arguments were well-supported by evidence. I was impressed by the precise definitions you gave of course concepts. However, remember to proofread your work, as there were quite a few spelling errors.

For the computer program: This program is difficult to understand. It is also poorly written. Your program failed to achieve the correct end result. This program has poor documentation. It is not very user-friendly. Your work reveals an unoriginal approach to programming. You should proofread your work as some variable names were spelled inconsistently. Your logic is easy to follow.

Participants who received negative feedback for the English paper and positive feedback for the computer program read the following comments.

For the English paper: This is a poorly-written paper. It does not get at the heart of the issue at hand. You have presented a poorly-reasoned analysis. Your ideas are very unfocused. Remember that your arguments need to be supported by evidence. The transitions between your paragraphs are rough. Also, your paper is three pages short of the assigned length. This is a valid topic for analysis.

For the computer program: Your program is easy to understand. It is very clearly written. Your logic is easy to follow. Also, the logic underlying the program passed all tests. This program has careful documentation throughout. It is very user-friendly. Your work reveals a highly creative approach to programming. You should proofread your work as some variable names were spelled inconsistently.

Procedure

Participants were run in mixed-sex groups ranging in size from 1 to 10 people. They first provided demographic information and filled out the BDI and Rosenberg Self-esteem scale. They were then provided with hypothetical performance feedback from a professor (consisting of 8 performance-relevant statements each) for a computer program and an English paper. Participants were asked to imagine that either they themselves or another student had written the paper/program. The feedback for one of the two performance domains was mostly positive, the other mostly negative.

After reading the performance feedback, participants were asked to guess the letter grade the professor had assigned to the paper/program, and to rate the comments, as a whole, on a scale of 1, highly negative, to 9, highly positive. Participants were then given a three minute surprise recall test of the performance feedback for both domains. Finally, participants were given a form listing each of the eight English paper and eight computer program comments. They were asked to rate the three comments which were most influential in determining the grade the professor had assigned the paper/program, with 1 being most influential.

Participants were randomly assigned to one of eight conditions based on whether the feedback was for the self or another student, the order of presentation of English versus Computer Science, and the order of presentation of positive versus negative comments.

Results

This was a 2 (participant gender) X 2 (target: self versus other) X 2 (order: Computer Science or English presented first) X 2 (domain: Computer Science versus English) X 2 (feedback: positive versus negative) design with the last two factors varied within participants.

Estimated grades

There were no gender differences in estimates of the grades the professor assigned to the computer program. However, gender differences were obtained for the English paper. When the feedback was positive, females thought that the paper received a marginally higher grade (M = 3.48) than males thought it received (M = 3.34), $t(81) = -1.78$, $p < .08$. When the feedback was negative, however, females thought that the paper received a marginally lower grade (M = .61) than males thought (M = .67), $t(73) = -1.93$, $p < .06$.

Recall of feedback

Participants were instructed to recall the eight specific statements of the feedback for the paper and program. Because of individual differences in total recall, the number of positive feedback statements recalled by each participant was divided by a participant's total recall. As recommended by Winer, Brown, and Michels (1991), arcsine transformations were performed on these proportions. Means presented in the paper are untransformed for ease of interpretability.

It should be noted that the results for the recall of negative and positive statements within a condition are equivalent because the two numbers add up to 100%. The maximum number of negative statements that can be recalled in the positive feedback condition and the maximum number of positive statements in the negative feedback condition is 1 because the other seven statements are of opposite valence. Because of this restriction in range, the following ANOVAs are very conservative and therefore less sensitive in detecting gender differences.

Negative feedback. When participants received negative feedback for their own computer program and English paper, there were marginally significant gender differences, $t(41) = 1.89$, $p < .07$; $t(34) = 1.83$, $p < .08$, respectively. Males recalled more positive statements (M = .28) than females (M = .18) for the computer program and the English paper (M = .11

versus M = .05).

Positive feedback When rating their own successful performance in Computer Science, females recalled marginally more positive statements (M = .65) than did males (M = .64), $t(35) = -1.83$, $p < .08$. For the English paper there was a significant effect of gender, $t(81) = -2.83$, $p < .006$, and a significant interaction between target and gender, $t(81) = 2.10$, $p < .04$. When evaluating their own performance, especially when English was the first subject presented, males recalled marginally more positive statements (M = .57) than did females (M = .35), $t(23) = 1.76$, $p < .10$.

When participants received positive feedback for the performance of others, females recalled significantly more positive statements (M = .70) than males did (M = .54) for the other student's program, $t(34) = -2.53$, $p < .02$, and paper (M = .51 versus M = .32), $t(37) = -2.21$, $p < .04$.

Discussion

The results indicate that women estimated that the English paper had received higher grades than men did when the feedback was positive, but they estimated lower grades than men did when the feedback was negative. Thus, females reacted in a more polarized fashion to the performance feedback, indicating that they were somewhat more affected by the evaluative feedback than males. However, this effect was not obtained for the computer program. Roberts and Nolen-Hoeksema (1994) found no evidence for gender differences in the perception of the valence of feedback. It should be noted that the observed gender difference in this study was fairly small and obtained for one subject matter but not another. Thus, the observed gender difference in perceived valence of feedback may depend on the specifics of the situation, the sensitivity of the dependent variables, and a large sample size to detect small differences.

Gender differences in the recall of feedback were found. , When receiving negative feedback for Computer Science and English, males recalled a greater percentage of positive statements than did females when the target of the feedback was the self, showing a stronger self-enhancement bias. When the target for positive feedback was the self, females recalled somewhat more positive statements than did males for the computer program. The reverse was true for the English paper, where males recalled more positive statements than did females. When the target of positive feedback was another student, females recalled a greater percentage of positive statements about the program and paper than did males, showing a stronger other-enhancement bias.

Previous research investigating related self-perception variables found that women compared to men underestimate their performance on masculine tasks more (Beyer, 1990, 1998, 1999a; Beyer & Bowden, 1997), attribute a successful performance less to ability, especially for a masculine subject (mathematics) (Beyer, 1998/1999), and show a recall bias for negative information (Beyer, 1998, 2000). Females' less positive self-perceptions are likely influenced by low parental expectancies and attributions (Parsons, Adler, & Kaczala, 1982), teachers' expectancies (Rustemeyer, 1999), and societal stereotypes regarding females' lesser competence (Beyer, 1999b). The present findings demonstrate that females are less self-enhancing and more other-enhancing than males which fits with prior research.

Males receive more negative feedback and criticism in the classroom than females (Minuchin & Shapiro, 1983). Males may become desensitized to this barrage of negative feedback and discount criticism. This is especially likely because they have learned in school that negative feedback is not necessarily performance-related but reveals teachers' exasperation with the child's disruptive behavior. Girls receiving negative feedback tend to be chastised for their performance, thus learning that feedback is performance-relevant and important (Dweck, Davidson, Nelson, & Enna, 1978). This may lead to greater acceptance of feedback.

What are the consequences of the acceptance of negative feedback? Failure situations affect females' self-esteem more than success situations do. No such difference exists for males (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). This may lead to negative self-evaluations which are related to depression (Brown, Andrews, Bifulco, & Veiel, 1990; Brown, Bifulco, & Andrews, 1990; Crocker, Alloy, & Kayne, 1988; Glass, McKnight, & Valdimarsdottir, 1993). Positive self-perceptions, on the other hand, are intimately tied to aspirations, preference for challenging tasks, curiosity, intrinsic motivation, persistence and thus have desirable effects on performance (see Beyer, 1995 for an overview; Greene, DeBacker, Ravindran, & Krows, 1999). Not surprisingly, girls do worse after failure experiences than do boys (Dweck & Gilliard, 1975; Pomerantz & Ruble, 1997). This suggests that perceiving feedback to be very negative may lead to performance decrements and deleterious affective and behavioral consequences.

On the other hand, an appropriate reliance on evaluative feedback as a source of information regarding quality of performance may serve important self-regulatory functions. For example, realizing the informational value in a professor's criticisms of one's paper can lead to an improved rewriting of the paper. If, as males are more apt to do, one rejects the feedback, one is unlikely to improve one's skills and learn from others' advice.

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